

## CONSERVATION OF TWO STATUES IN THE TEMPLE OF MUT IN LUXOR, EGYPT

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### ABSTRACT

In 2012, the American Research Center in Egypt (ARCE), financed by the United States Agency for International Development (USAID) in cooperation with the Egyptian Ministry of Tourism and Antiquities (MoTA) (formally the Egyptian Ministry of Antiquities) focused on two badly damaged statues in the Temple of Mut (part of the Karnak Temple Complex) in Luxor, Egypt. With the generosity of USAID and support of the MoTA, both statues were conserved and restored in a field school setting utilizing modern and reversible techniques following international standards. Signage was provided to inform tourists and visitors of the restoration history and representations of the statues.

**KEYWORDS:** Sekhmet, Ramesses II, Mut Temple, Conservation, Artificial Stone, Amenhotep III

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### Article History

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### INTRODUCTION

With the 2011 Egyptian Revolution came economic hardships, uncertainty and job losses. As the tourism sector counts for 11.4% of the Egyptian GDP and provides 12.6% direct and indirect job opportunities (Mohammed 2012), the downturn was untimely and anxieties were very high. USAID sought to reduce this burden by financially supporting criteria that addressed many of the problems during this time. The American Research Center in Egypt (ARCE), with the support of the Ministry of Tourism and Antiquities (MoTA), developed projects that addressed all of the USAID criteria in a series of project proposals. The authors in their previous positions with ARCE (Dr. John Shearman – Associate Director – Luxor and Dr. Khadija Adam – Conservation Manager) developed, budgeted, implemented and managed several site improvement and temporary job creation that also included training and conservation activities that was meant to attract tourists in returning to Egypt.

### Mut Temple

One of the projects was to improve the Mut Temple site that is part of the Karnak Temple Complex. The temple is located south, adjacent to the main temple at Karnak. The temple was closed prior to the project and one of the project's objective was to clean and enhance the site, prepare it for tourists and open the temple to visitors. Initially, the focus was on the sacred lake and surveys and testing started in 2007 (Mokhtar 2009) as part of the Egyptian Antiquities Conservation Project (EAC) financed by USAID. This was a multi-year project that completed the work on the sacred lake in 2012 (ARCE 2014) and expanded to include another USAID cooperative agreement entitled Job Creation through Cultural Resource Management in Luxor (APS) (ARCE 2014). The projects goal was to improve the site for safe access, remove debris and weeds, install weed prevention mechanisms, and install signage. The site was officially opened by then Minister of Antiquities, Mohammed Ibrahim Ali Sayed on January 11, 2014.

The site contained many statues in all stages of decay. As part of the improvement, concrete slabs were installed to seat the statues for reduction of the ongoing decay. Among the many statues, two statues in particular were chosen to conserve and restore as part of a two-month statue reconstruction field school from October 20, 2013 to December 20, 2013. The trainees were all employees of the MoTA. The training was meant to focus on techniques of conservation and restoration utilizing materials available in Egypt so that the program could be sustainable in nature. The first statue was a site unique depiction of the goddess Sekhmet with a diadem of uraei crown. The statue also contained an inscribed cartouche of Shoshenq I. The second statue was a representation of a royal individual with visual inscribed indication of its portrayal noticeably absent. Previous research (Bryan 2010) has suggested that initially it represented Amenhotep III but was later modified and usurped by succeeding pharaohs.

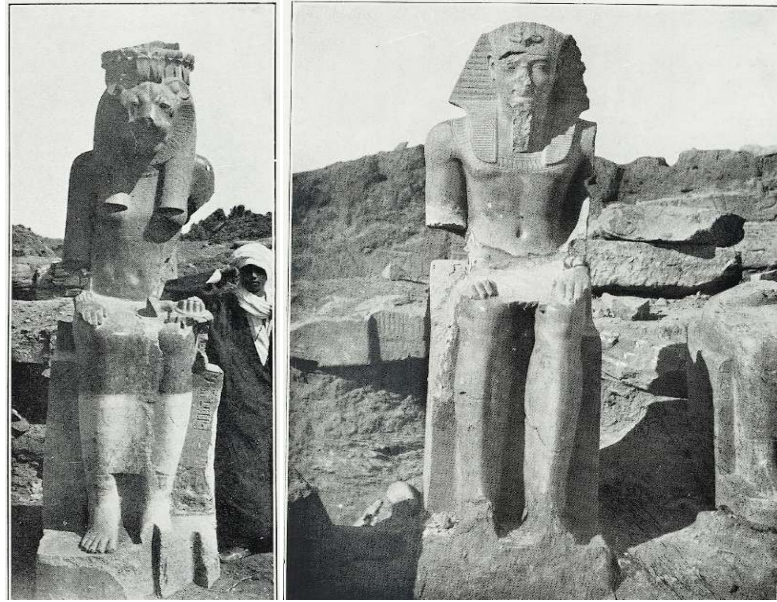
### Statues History

There were several early explorers who created maps and plans of the temple including Napoleon's scientists circa 1798-1801, Nestor l'Hote (Ahram 2013) circa 1839, Karl Lepsius circa 1842-1845, Auguste Mariette and Gaston Maspero circa 1855-1865. Extensive excavations were performed by Margaret Benson and Janet Gourlay between 1895 and 1897. Benson and Gourlay (Benson and Gourlay 1899) are largely responsible for uncovering and discovering the unique Sekhmet and royal statues. The Google Earth image (Figure 1) shows the location in the second court of the statues found in situ and where their current location is similarly placed within the temple.



**Figure 1: Location of Statues within the Temple.**

Benson and Gourlay state their disappointment that when the royal statue was found there was no date or clear inscriptions that could date the figure. It is identified in their publication as probably representing Tutankhamun. In finding the Sekhmet statue, it was clear to them that it was dedicated to Sheshanq (Shoshenq I) and showed some different work from the rest and posed a very imposing appearance.



Source: Image Benson, M. and Gourlay, J. (1899) Plates XIX and XV.

**Figure 2: Sekhmet (Left) and the Royal Statue (Right) as Excavated by the Benson and Gourlay Expedition.**

### Statue Conservation

As part of USAID's focus on capacity building, ARCE's Conservation Manager, Dr. Khadija Adam, prepared a plan for inclusion of MoTA conservators at various stages of experience so as to represent a field school setting during the 2013-2014 season. The goal was to instruct on the various stages of statue conservation and restoration. A total of nine MTA trainees received instruction.

The first stage involved researching the history of the statues along with documenting their existing condition. Research was conducted citing the sources mentioned above along with historic photographs. The research provided both the instructor and trainees with a historic context and connection with the statues, as well as type of stone used, manufacturing techniques, and how the period affected the art style. The existing condition documentation via photographs and drawings is a necessary step not only for historic purposes, but is a necessary basis for planning the vital restoration procedure and refurbishment material. Another program associated with the grant financed by USAID, was a photography field school. The field school took the necessary photographs along with progress photos of the project. Dr. Khadija Adam utilized a sustainable technique with the photographs using them as a basis for drawings. Tracings of the photographs were taken as condition and restoration mapping as a matter of record (see Figure 3). The full list of written documentation (recorded on the Archiving Data Form) consisted of the following:

- Historical Background
- Base drawing
- Photo before conservation
- Identification, evaluation and ID code
- Condition Report 1 – Previous intervention

- Condition Mapping 1 – Previous intervention
- Key Mapping 1 – Previous intervention
- Condition Report 2 – Superficial decay
- Condition Mapping 2 – Superficial decay
- Key Mapping 2 – Superficial decay
- Condition Report 3 – Structure decay
- Condition Mapping 3 – Structure decay
- Key Mapping 3 – Structure decay
- Treatment proposal
- Treatment report
- Treatment mapping key
- Treatment mapping
- Photograph after treatment

Treatment map legends were all black and white so that if copies were made, the symbolism would not be lost as experienced with colour legends. The photographs were supplied by the Photography Field School trainees from the MoTA. The tracings were done on locally available tracing paper. All trainees under ARCE's supervision generated all the mapping and condition reports following the ICOMOS Illustrated Glossary on Stone Deterioration Patterns document that is available in English-Arabic text.



**Figure 3: Showing the Initial Sustainable Documentation Process of Photography, Tracing and Condition Mapping.**



In order to move the sections of the statues, a portable crane was designed by Dr. John Shearman and fabricated for use on the project to be donated to the MoTA upon completion of the project. With the completion of the documentation of the existing condition, the previous cement patching was removed along with the separation and cleaning of dismantled statue pieces. The previous intervention of the cement patching of the statues was performed during, and most likely, after Benson's expedition as attested by the photographs in the expedition's publication. For the Sekhmet statue, Benson and Gourlay (Benson and Gourlay 1899) records "It was broken at the waist and in two or three places below the waist, but nearly all of the statue could be found. We managed to put it together by the aid of appliances lent to us by M. Legrain, who was then District Inspector of Antiquities, and under the direction of an experienced reis who was working for him at Karnak, and whose services he kindly put at our disposal towards the end of the season when we were mending and putting up our statues". Similarly with the Royal statue, Benson and Gourlay (Benson and Gourlay 1899) write "Very little was actually missing, so that we were able subsequently to mend and set it up in the temple".

Although Benson and Gourlay did not describe in detail the extent of the "mending" that was performed on the statues, in time, it is suggested that the vertical major crack in the Sekhmet statue lap area (see Figure 4) opened to a magnitude that required some type of patching to assist in holding it together. It was most likely patched by the Egyptian government with oversight of the antiquities but the exact date would be difficult in tracking. Interestingly, the base (seat) of the Sekhmet statue, contained broken fill pieces from various pieces of stone. Many of the larger blocks used for fill are inscribed (see Figure 7). There were also two arm sections of the statue located in the base that was returned to its original position (see Figure 8).



**Figure 4: Vertical Cement Patch**



**Figure 5: Examples of Stone Decay on the Statues Sekhmet Statue Lap Area.**



**Figure 6: Sekhmet Statue base Containing Inscribed Blocks and Miscellaneous Fragments.**



**Figure 7: Inscribed Block Fill found in the Sekhmet Statue base.**



**Figure 8: Fill Pieces Found in the Sekhmet Statue.**



**Figure 9: Showing a Fill Piece Location on the Statue base Arm.**

During the dismantling and cement removal, it was found to contain several very thin, corroded metal bars. It was noted that many of the previous cement patches failed, causing large open vertical cracks. Salt efflorescence, in the form of spalling and softening of the stone, was also present in many areas. Wasp and bird nests were also attached to the statues. The work area was covered with canvas to maintain acceptable air temperature so as not to affect the material during conservation.

With the statues dismantled, a new reinforced concrete base for the statues was installed (see Figure 11). During the cleaning of the various pieces of the statues, a treatment proposal and plan was generated and the implementation phase started.



**Figure 10: Excavation for the Sekhmet Statue base    Figure 11: The Completed Concrete base.**

The reattachment of the statue pieces on the new concrete support base was systematically performed and fully documented. Several pieces were joined with small reinforcement of stainless steel pins and dowels. This material is resistant to corrosive atmospheric conditions. Cracks were treated and sealed along with miscellaneous patching and re-establishing a statue base using artificial stone. The artificial stone base was a mixture of crushed Granodiorite, Adibond, Glass Sand and Pozzolana.

### **SCULPTURE AND MOLDING**

Moulding was an essential training activity in the ARCE field school. Moulding techniques and applications can support many future conservation activities. With the cleaning, dismantling, repairs and new base complete, it was time for the skilled sculptor to train on the filling in of missing features. This process was led and performed by Dr. Professor Mohamed Shehata from the Faculty of Art, Sculpture Department at Helwan University. Each feature was carefully sculpted based on mirror imaging and filling in remaining parts of the feature. Several materials can be used as the basis for the mould. In our case, plaster was used (see Figure 12). Upon the completion of the plaster feature, a silicone rubber coating was placed over the sculpted piece that would be used as a mould for the artificial stone replacement. The artificial stone was mixed and placed into the silicone rubber mould. The results were a fabricated feature that would be displayed as a completed piece of the original sculpture with an obvious distinct difference in colour and texture (see Figure 13). The field school also used two techniques for the replacement pieces. In the Sekhmet Statue, the artificial pieces were recessed from the original to highlight the differences between the original stone and the artificial stone. In the Royal Statue, the artificial pieces were on the same level with the original stone but the difference between the two materials were visually evident. The other important lesson for the trainees at the field school was that the artificial stone replacement could be



removed in the future if so desired (i.e. reversible).



**Figure 12: Students Placing the Plaster Mixture for the Sculpture of the Missing Fragment.**



**Figure 13: Dr. Shehata Installing Fabricated Artificial Stone Replacement Piece after Moulding.**

Upon completion of the conservation and restoration, signage was installed displaying the history of the statue that also presented the before and after conservation results. The statues were enclosed with a rope railing barrier, to avoid visitor touching or climbing on the statues.

## CONCLUSION

The ARCE Statue Reconstruction Field School under the direction of Dr. Khadija Adam was a complete success. The before and after photos show the remarkable conservation and restoration (see Figure 14, Figure 15, Figure 16, and Figure 17). Some students went on to treat other statues per lessons learned in the field school. The statues stand today as a testament of Egyptian conservation skill as all parties actively involved in the training were Egyptian, supported and financed by USAID in collaboration with the MoTA.





**Figure 14: Sekhmet before Conservation.**



**Figure 15: Sekhmet after Conservation.**



**Figure 16: Royal Statue before Conservation**



**Figure 17: Royal Statue after Conservation.**

## REFERENCES

1. <https://english.ahram.org.eg/NewsContent/9/40/62647/Heritage/Ancient-Egypt/The-lioness-for-real.aspx>
2. American Research Center in Egypt (ARCE) (2012). *Annual Report for Year 8 (October 1, 2011 – July 14, 2012) and Annual Implementation Plan for Year Nine (July 15, 2012 – July 14, 2013) The Egyptian Antiquities Conservation Project (EAC) USAID Agreement No. 263-A-00-04-00018-00.* [https://pdf.usaid.gov/pdf\\_docs/PA00JBDR.pdf](https://pdf.usaid.gov/pdf_docs/PA00JBDR.pdf)

3. American Research Center in Egypt (2014). *FINAL REPORT (October 1, 2011 through December 31, 2014). Job Creation through Cultural Resource Management in Luxor (APS). Cooperative Agreement No. AID-263-A-11-00020.* [https://pdf.usaid.gov/pdf\\_docs/PA00KHC4.pdf#page=1&zoom=auto,-73,140](https://pdf.usaid.gov/pdf_docs/PA00KHC4.pdf#page=1&zoom=auto,-73,140)
4. Benson, M. and Gourlay, J. (1899). *The Temple of Mut in Asher. An account of the excavation of the temple and of the religious representations and objects found therein, as illustrating the history of Egypt and the main religious ideas of the Egyptians.* John Murray, London. pp. 36-41.
5. Bryan, B.M. (2010). *Amenhotep III's Legacy in The Temple of Mut. Culture and History of the Ancient Near East. Volume 38. Offerings to the Discerning Eye. An Egyptological Medley in Honor of Jack A. Josephson. Chapter 8. pp. 63-72. Brill Publishing. Leiden, The Netherlands.*
6. Mohammed, A.A.A., Jones, E., Fayed, H.A.S., and Dawood, A. (2012). *The Impact of the Egyptian Political Events during 2011 on Hotel Occupancy in Cairo. Journal of Tourism Research & Hospitality, 1(3).*
7. Mokhtar, M. (2009). *FINAL REPORT. ARCE Groundwater Lowering Response Project, Luxor. Preservation of the Sacred Lakes – Mut Lake Dewatering. June 2008 – March 2009. The Egyptian Antiquities Conservation Project (EAC). USAID Agreement No. 263-A-00-04-00018-00.* [https://pdf.usaid.gov/pdf\\_docs/PA00JB99.pdf](https://pdf.usaid.gov/pdf_docs/PA00JB99.pdf)